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MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER	
RIDLEY, BASIA ANNA	

ART UNIT	PAPER NUMBER
1764	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/522,179	Applicant(s) CHAPUS ET AL.
	Examin r Basia Ridley	Art Unit 1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *08/935,896* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claim(s) 11-19, 21 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frame et al. (USP 5,064,525) in view of Cooper et al. (USP 5,865,989).

Regarding claim(s) 11-14, Frame et al. disclose(s) similar apparatus comprising:

- at least one selective hydrogenation reactor containing at least one fixed catalyst bed, said at least one selective hydrogenation reactor having at least one line for introducing feed, at least one effluent outlet line, and at least one line for supplying hydrogen to said at least one selective hydrogenation reactor (abstract, C5/L11-51);
- at least one stabilization drum connected to said at least one effluent outlet line, said at least one stabilization drum having at least one gas outlet line and at least one stabilized effluent outlet line (C11/L43-C14/L10);
- at least one sweetening reactor comprising at least one effluent inlet line, at least one sweetened effluent outlet line and at least one oxidizing agent supply line, wherein said effluent inlet line is in fluid communication with said at least one stabilized effluent outlet line (abstract, C11/L43-C14/L10);
- said apparatus further comprising at least one recycle line for recycling stabilized effluent from said at least one stabilized effluent outlet line to said at least one selective hydrogenation reactor (C11/L43-C14/L10).

Frame et al. does not explicitly disclose at least one drum for degassing the sweetened

effluent from the at least one sweetening reactor. Further, the reference does not explicitly disclose at least one line for recycling effluent from said at least one drum for degassing the sweetened effluent from the sweetening reactor to the at least one selective hydrogenation reactor.

Cooper et al. teaches that it is conventional to treat the effluent from sweetening reactor in a degassing drum and to recycle at least a portion of said effluent to the untreated feed. The recycling of a portion of the treated product into untreated feed dilutes pollutant concentration in said feed and improves the properties of final product. The nitrogen from the treated product is removed in the degassing drum for the purpose of improving solubility of oxygen in the feed and improving the properties of final product (abstract and C1/L63-C2/L10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add at least one drum for degassing the effluent from the sweetening reactor and to recycle at least a portion of the effluent from said at least one drum for degassing the effluent from the sweetening reactor to the untreated feed, as taught by Cooper et al. in the apparatus of Frame at al., for the purpose of improving the performance of said apparatus and improving properties of final product.

Regarding claim(s) 15-19, 21 and 25-28, Frame et al. in view of Cooper et al. disclose(s) similar apparatus wherein:

- said at least one hydrogenation reactor contains a catalyst comprising 0.1-1 weight % palladium deposited on an inert support (C3/L4-C4/L32);
- said at least one hydrogenation reactor contains a catalyst comprising 0.2-0.5 weight % palladium deposited on an inert support (C3/L4-C4/L32);
- said at least one hydrogenation reactor contains a catalyst comprising 1-20 weight % nickel deposited on an inert support (C3/L4-C4/L32);

- said at least one hydrogenation reactor contains a catalyst comprising 5-15 weight % nickel deposited on an inert support (C3/L4-C4/L32);

- said at least one line for supplying hydrogen to said at least one selective hydrogenation reactor is in fluid communication with said at least one line for introducing feed (C5/L34-42);

- said at least one sweetening reactor contains a supported catalyst comprising a metal chelate (C5/L67-C10/L46);

- said at least one sweetening reactor contains a porous catalyst comprising 10-98 weight % of at least one solid mineral phase constituted by an alkaline aluminosilicate having an Si/Al atomic ratio of 5 or less, 1-6 weight % of activated charcoal, 0.02-2 weight % of at least one metal chelate and 0-20 weight % of at least one mineral or organic binder (C5/L67-C10/L46);

- said metal chelate is a metal phthalocianine (C5/L67-C10/L46).

3. Claim(s) 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frame et al. (USP 5,064,525) in view of Cooper et al. (USP 5,865,989), as applied to claim 11, and further in view of Boitiaux et al. (USP 4,533,779).

Regarding claim(s) 20, Frame et al. in view of Cooper et al. disclose(s) all of the claim limitations as set forth above, but the references do not disclose the catalyst in the at least one selective hydrogenation reactor comprising gold and having Au/Pd ratio of 0.1 or more.

Boitiaux et al. teaches that it was known in the art at the time of the invention that catalyst comprising gold and having Au/Pd ratio of 0.1 or more can be used to selectively hydrogenate undesirable dienic, acetylenic and mercaptan compounds (C1/L11-15 and C9/L14-16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use catalyst comprising gold and having Au/Pd ratio of 0.1 or more in the at least one selective hydrogenation reactor of Frame et al., as taught by Boitiaux et al., because doing so would

amount to nothing more than use of a known material for its intended use in a known environment to accomplish entirely expected result.

4. Claim(s) 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frame et al. (USP 5,064,525) in view of Cooper et al. (USP 5,865,989), further in view of Boitiaux et al. (USP 4,533,779) as applied to claim 20, and further in view of Hearn et al. (USP 5,597,476).

Regarding claim(s) 22, Frame et al. in view of Cooper et al. and further in view of Boitiaux et al. disclose(s) all of the claim limitations as set forth above, but the references do not explicitly disclose the at least one selective hydrogenation reactor comprising a second line for supplying hydrogen which is directly connected to said at least one hydrogenation reactor.

Hearn et al. teaches that it was known in the art at the time of the invention to add hydrogen directly to the selective hydrogenation reactor (Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add hydrogen directly to the selective hydrogenation reactor of Frame et al., as taught by Hearn et al., because doing so would amount to nothing more than use of a known apparatus for its intended use in a known environment to accomplish entirely expected result.

5. Claim(s) 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frame et al. (USP 5,064,525) in view of Cooper et al. (USP 5,865,989), as applied to claim 11, and further in view of Hearn et al. (USP 5,597,476).

Regarding claim(s) 23, Frame et al. in view of Cooper et al. disclose(s) all of the claim limitations as set forth above, but the references do not explicitly disclose the at least one selective hydrogenation reactor comprising two catalytic zones and a second line for supplying hydrogen which is directly connected to said at least one hydrogenation reactor at a point between said two catalytic zones.

Hearn et al. teaches that it was known in the art at the time of the invention to add hydrogen directly to the selective hydrogenation reactor comprising two catalytic zones at a point between said two catalytic zones (Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add hydrogen directly to the selective hydrogenation reactor of Frame et al. at a point between two catalytic zones, as taught by Hearn et al., because doing so would amount to nothing more than use of a known apparatus for its intended use in a known environment to accomplish entirely expected result.

6. Claim(s) 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frame et al. (USP 5,064,525) in view of Cooper et al. (USP 5,865,989), as applied to claim 11, and further in view of Meguerian et al. (USP 2,795,531).

Regarding claim(s) 24, Frame et al. in view of Cooper et al. disclose(s) all of the claim limitations as set forth above. Additionally Frame et al. discloses the at least one sweetening reactor being in fluid communication with a source of an aqueous solution of an alkaline base containing metal chelate catalyst (C10/L16-46), but the reference does not explicitly disclose said communication being via said at least one oxidizing agent supply line.

Meguerian et al. teaches that the operation of the sweetening reactor can be improved by avoiding excessively high concentrations of free oxygen if the aqueous solution of an alkaline base is added via the same line as the oxidizing agent (Fig. 1 and C5/L45-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the aqueous solution of an alkaline base containing metal chelate catalyst to the at least one sweetening reactor of Frame et al. via said at least one oxidizing agent supply line, as taught by Meguerian et al., for the purpose of improving the operation of the sweetening reactor by

avoiding excessively high concentrations of free oxygen.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

8. Applicant's arguments filed 5 May 2003 have been fully considered but they are not persuasive.

9. The applicant argues that Frame at al. does not disclose a stabilization drum provided with at least one gas outlet, and that the reference does not disclose that the return of one portion of the hydrogenation effluent back to the hydrogenation reactor is done via recycle line.

This is not found persuasive. In columns 13-14 Frame at al. discloses that effluent from the hydrogenation reactor is passed through a 4A molecular sieve bed to remove hydrogen sulfide (C13/L3-6, etc.). While the reference does not explicitly disclose any container for said 4A molecular sieve bed or a gas outlet to remove said separated hydrogen sulfide presence of both, a container and all required inlet and outlet lines is inherent in the apparatus of Frame at al. The examiner notes that recitation of a "stabilization drum" was given its broadest reasonable meaning in light of the specification, and as such, any container resembling a drum in a shape or structure reads on the instant invention. See *In re Graves*, 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995). "Moreover, when interpreting a claim, words of the claim are generally given their

ordinary and accustomed meaning, unless it appears from the specification or file history that they were used differently by the inventor. [Citation omitted]." *In re Paulsen*, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994).

Further the examiner notes that as portion of the effluent from the hydrogenation reactor is recycled back to said hydrogenation reactor, it is inherently done in a recycle line.

10. The applicant argues that Cooper et al. fail to disclose a hydrogenation reactor, a separation drum upstream of a sweetening reactor and that the reference does not disclose a recycle line for recycling sweetened gasoline back to the hydrogenation reactor.

This is not found persuasive. The examiner notes that Cooper et al. was not relied upon to disclose a hydrogenation reactor or a separation drum upstream of a sweetening reactor. But the examiner has relied upon disclosure of Frame at al., as set forth above to disclose said hydrogenation reactor and separation drum upstream of a sweetening reactor.

Further, in view of the teaching of Cooper et al. that recycling of a portion of finished product to the untreated feed lowers the concentration of undesired compounds and therefore improves removal efficiency (C1/L63-C2/L10) it is examiner's position that one of ordinary skill in the art, while applying said teaching to the apparatus of Frame et al. would recycle the portion of finished product to the "untreated feed" (i.e. before the hydrogenation reactor) to further improve removal efficiency.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS

from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (703) 305-5418. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (703) 308-6824.

The fax phone number for Group 1700 is (703) 872-9311 (for Official papers after Final), (703) 872-9310 (for other Official papers) and (703) 305-6078 (for Unofficial papers). When filing a fax in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley
Examiner
Art Unit 1764

JERRY D. JOHNSON
PRIMARY EXAMINER
GROUP 1100

BR
July 11, 2003